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2009 H1N1 Influenza Virus

Washington State Pandemic Influenza Summit

September 8, 2009

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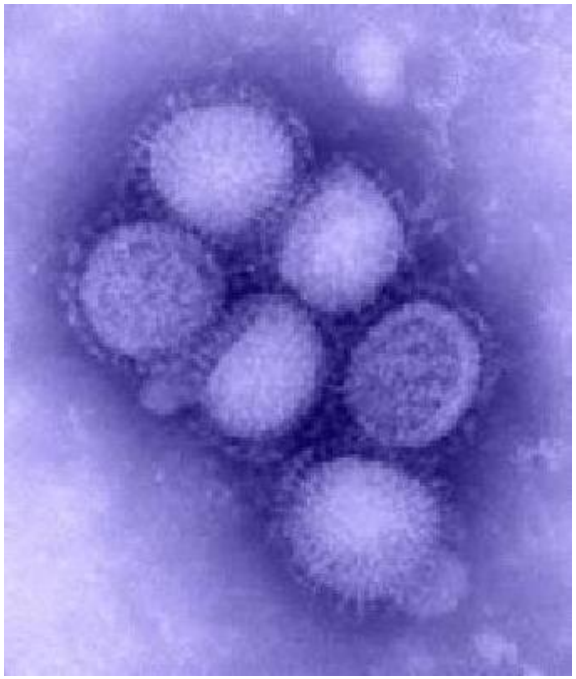
State Communicable Disease Epidemiologist

Washington State Department of Health

H1N1 (swine flu)

- What is it?
- How did it happen?
- Current situation.
- What we are doing.
- What you can do.



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What is influenza?

- **RESPIRATORY** illness due to influenza viruses that mutate & swap genes regularly
- Unlike most viruses, one influenza type (Influenza A virus) can sometimes infect multiple species (e.g., birds, pigs, humans)
- **NOT** cured with “traditional” antibiotics
- Usually, toddlers, kids & adolescents spread a lot of the infections and keep outbreaks going
- Usually, very young & older persons at risk for more severe disease, complications, & death
- Vaccination is primary & best form of disease control

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"Seasonal" VS "Pandemic"

Influenza A viruses **always** change

- **Seasonal flu epidemics each year**
  - Disease control: fine tune vaccine annually
  - One vaccine dose (immunity from last year's virus)

Rarely, influenza A virus changes **a lot**

- **"Pandemic" (worldwide epidemic)**
  - Disease control: make new vaccine
  - Two doses (no residual immunity from last year)

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In April, 2009…

- “two counties in southern California”
- “unique combination of gene segments”
- “neither child had contact with pigs”
- “different from human influenza A (H1N1)”
- “large proportion of the population may be susceptible”
- “possible human-to-human transmission of this new influenza virus has occurred”

“Swine Influenza A (H1N1) Infection in Two Children – Southern California, March-April 2009” (CDC MMWR, 4/21/09)

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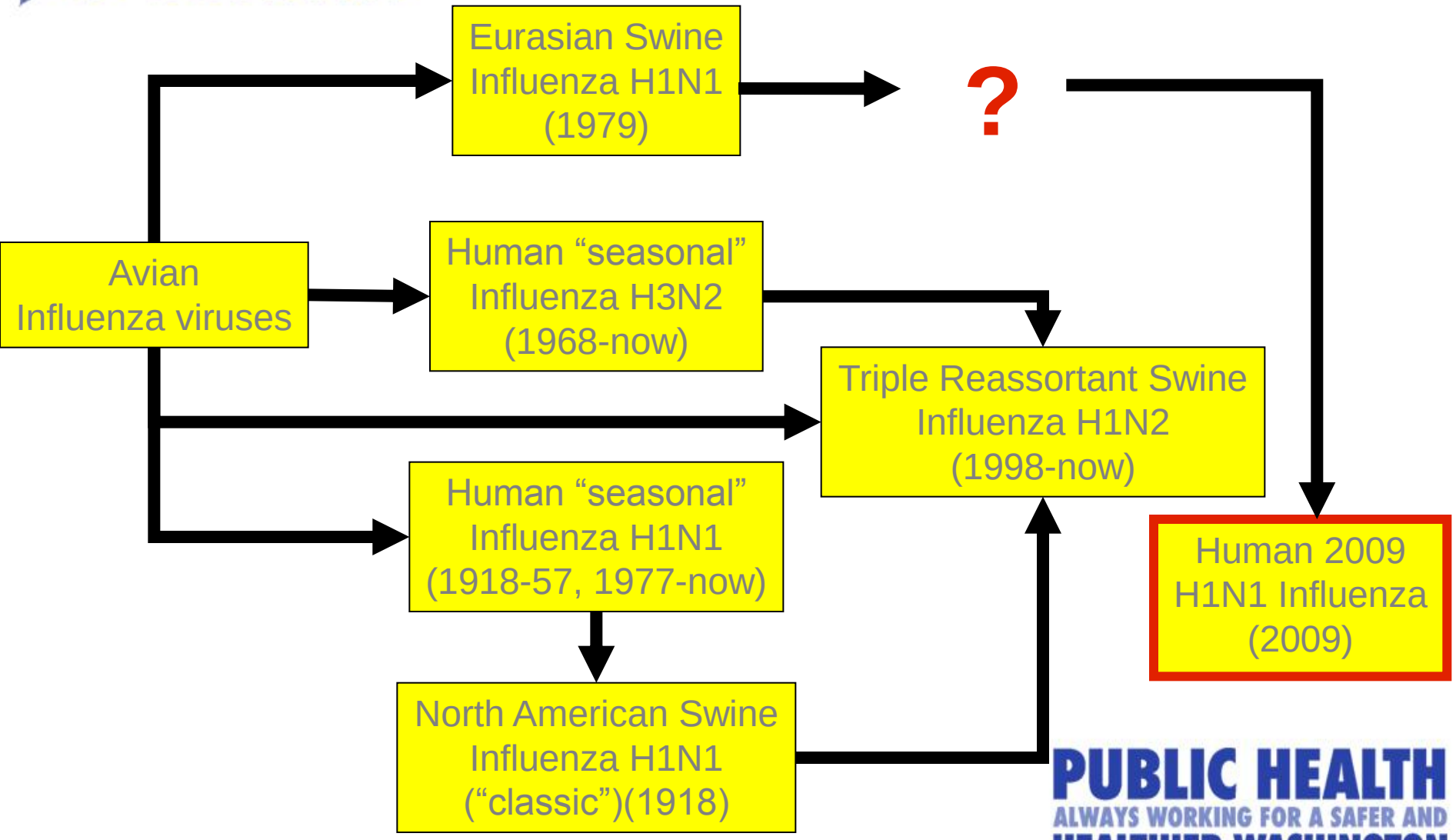
How did it happen?



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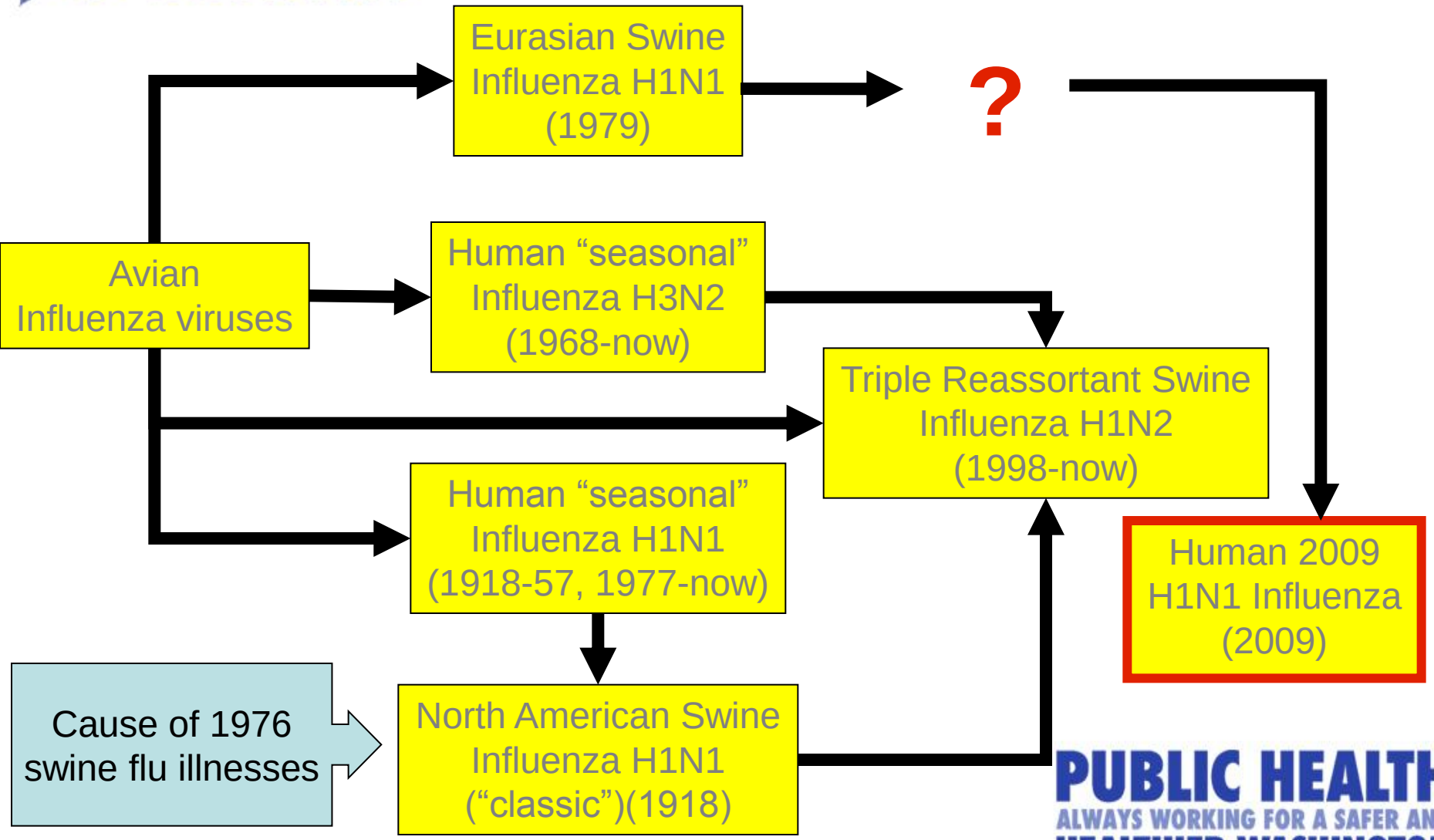

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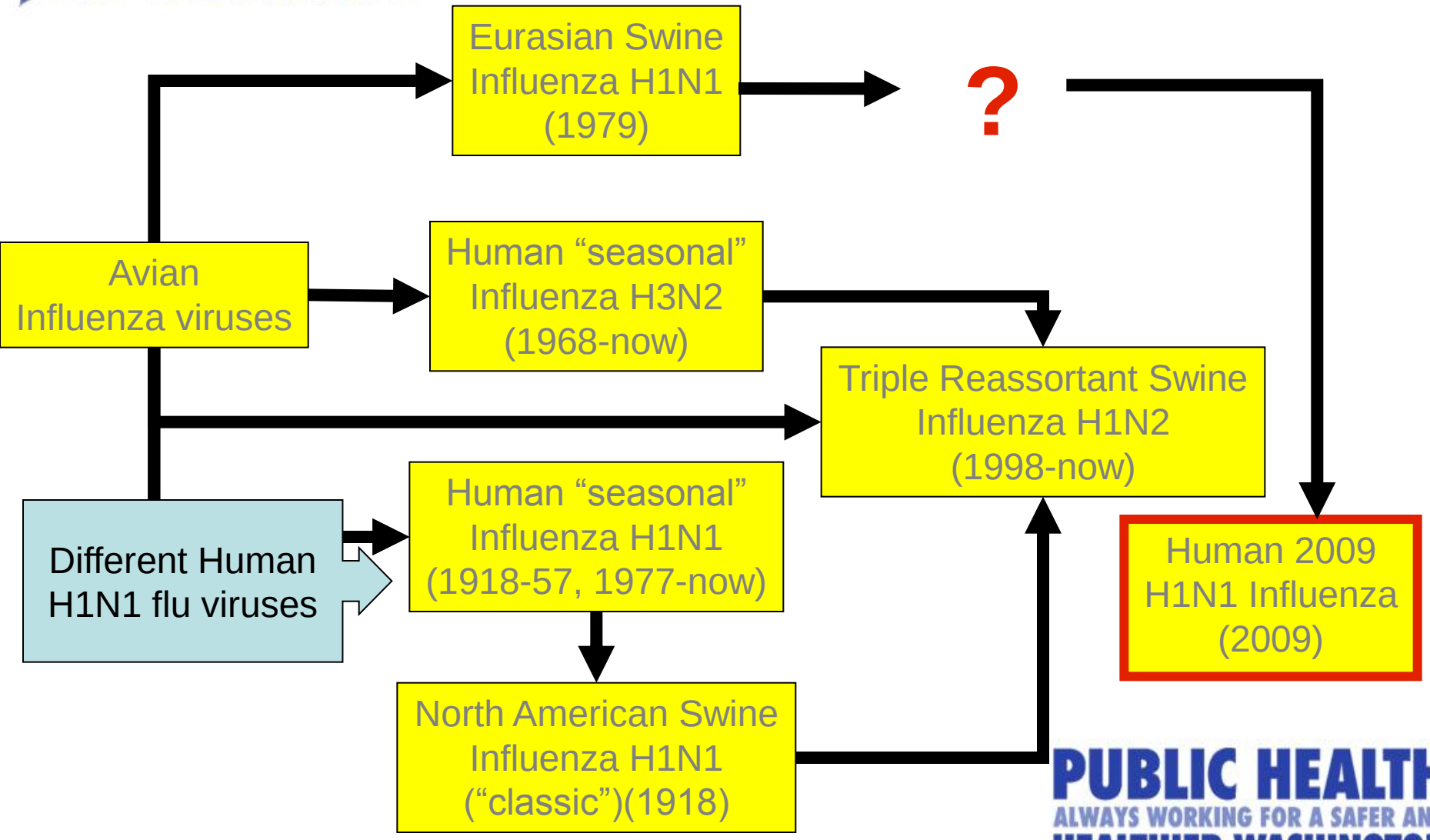

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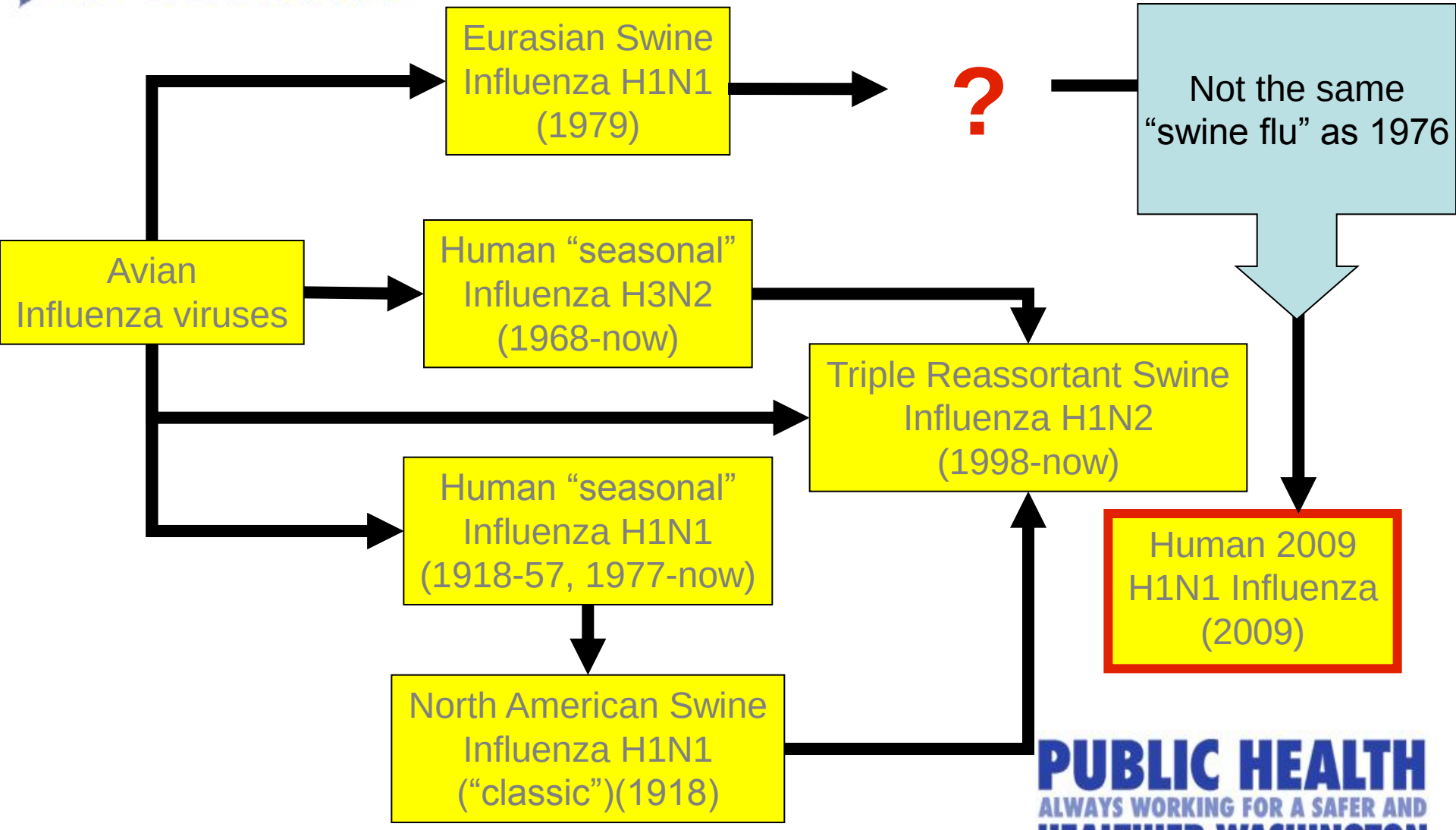

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First 576 cases of 2009 H1N1 influenza reported to the Washington Department of Health

	Hospitalized		
Age	**Yes**	**No**	**Unknown**
0 – 4	9	55	5
5 – 17	17	275	31
18 – 49	7	137	15
50 – 64	6	12	1
65+	2	2	0
Unknown	**0**	**0**	**2**

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Current Status in Washington*

- Since late May 2009, track fatal and hospitalized cases.
- 170 cases over 19 weeks.
- Increased impact on schools and businesses.

Hospitalizations – 156	72% between 5-64 years old
Deaths – 14	93% between 5-64 years old

*** As of August 31, 2009**

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U.S. Situation Report

Estimated 2 million infections through August 2009

- ~8,900 hospitalizations & ~ 560 deaths*
  - ~0.5% of hospitalized persons with influenza die (*Seasonal flu mortality rate is ~10-15%)*
  - 75% hospitalizations: people less than 50 years old
  - 60% of deaths: people less than 50 years old

* *As of August 22, 2009*

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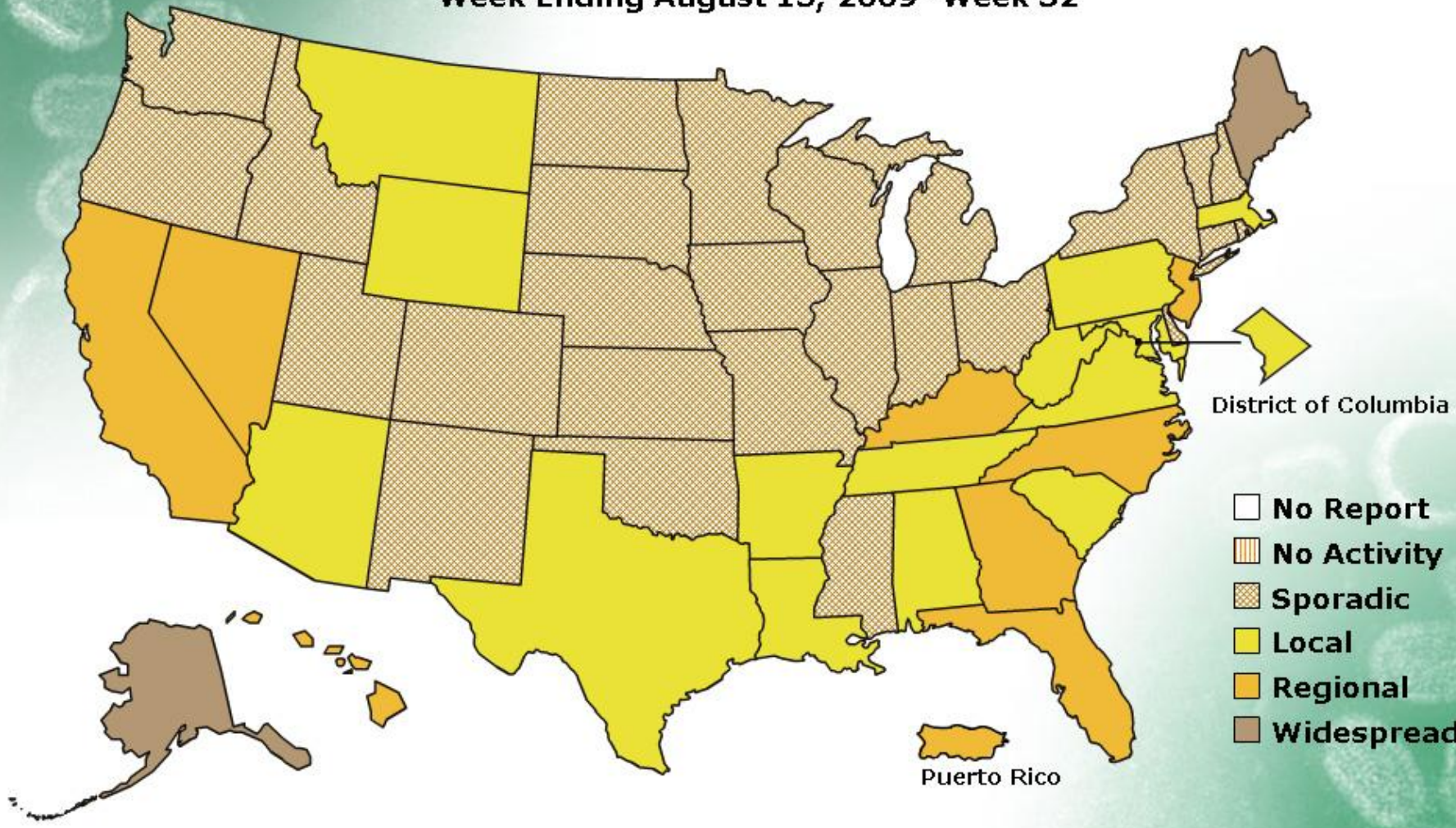
FLUVIEW

A Weekly Influenza Surveillance Report Prepared by the Influenza Division
Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists*

Week Ending August 15, 2009- Week 32



2008-2009 Influenza Season ends mid-August 2009

FLUVIEW

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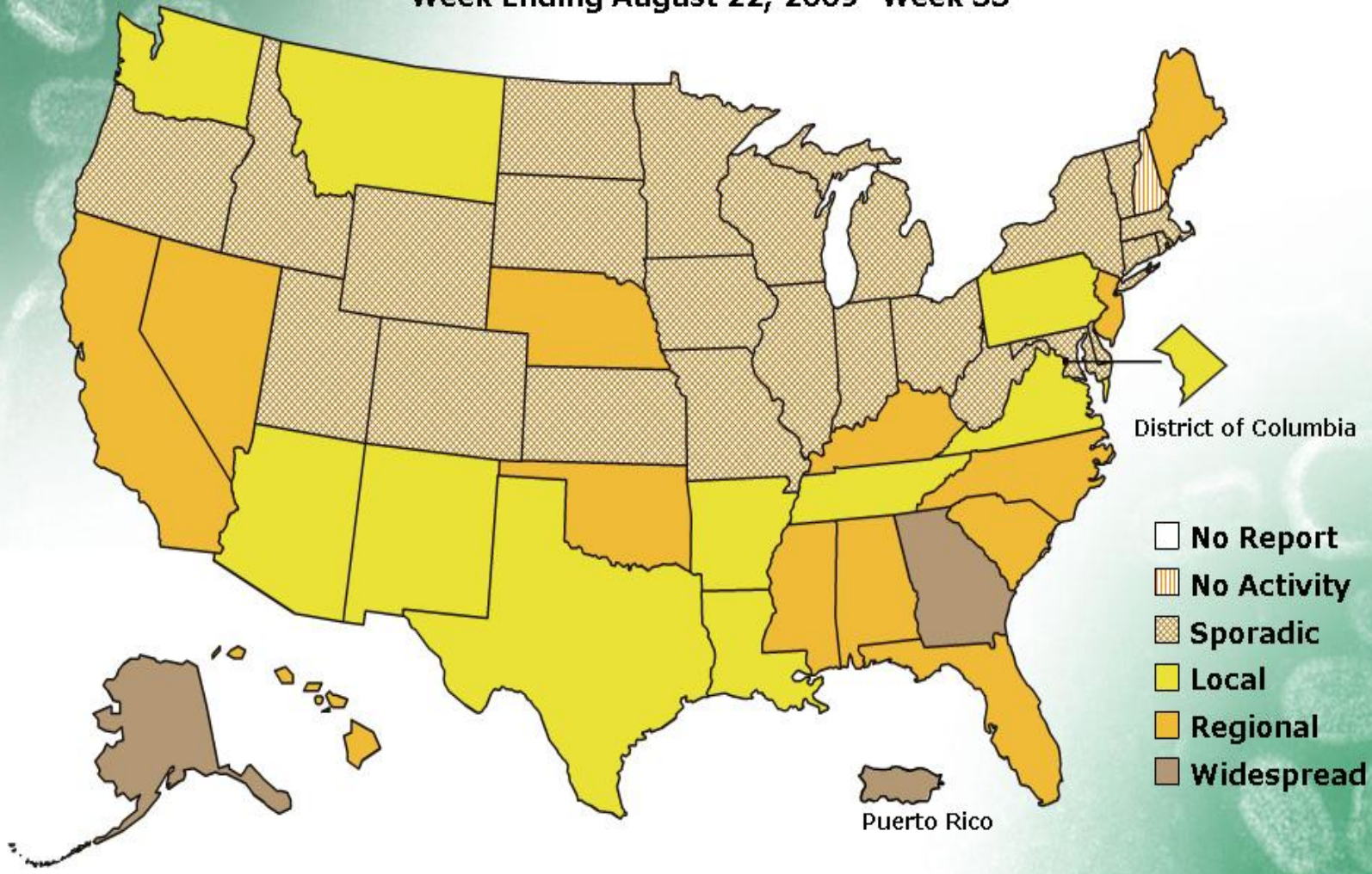

2009-2010 Influenza Season begins late August 2009

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International Situation Report

Mexico

- ~5% of hospitalized flu pneumonia cases die
- 5-59 years old: ~85% deaths / ~70% severe flu cases

South America

- ~ 1,100 deaths in South America
- 2009 H1N1 influenza virus is predominant flu virus circulating

Worldwide

- WHO: Activity picking up again in 2nd week of August 2009
- 12 cases of Tamiflu-resistance
- Some countries, high hospitalization rates

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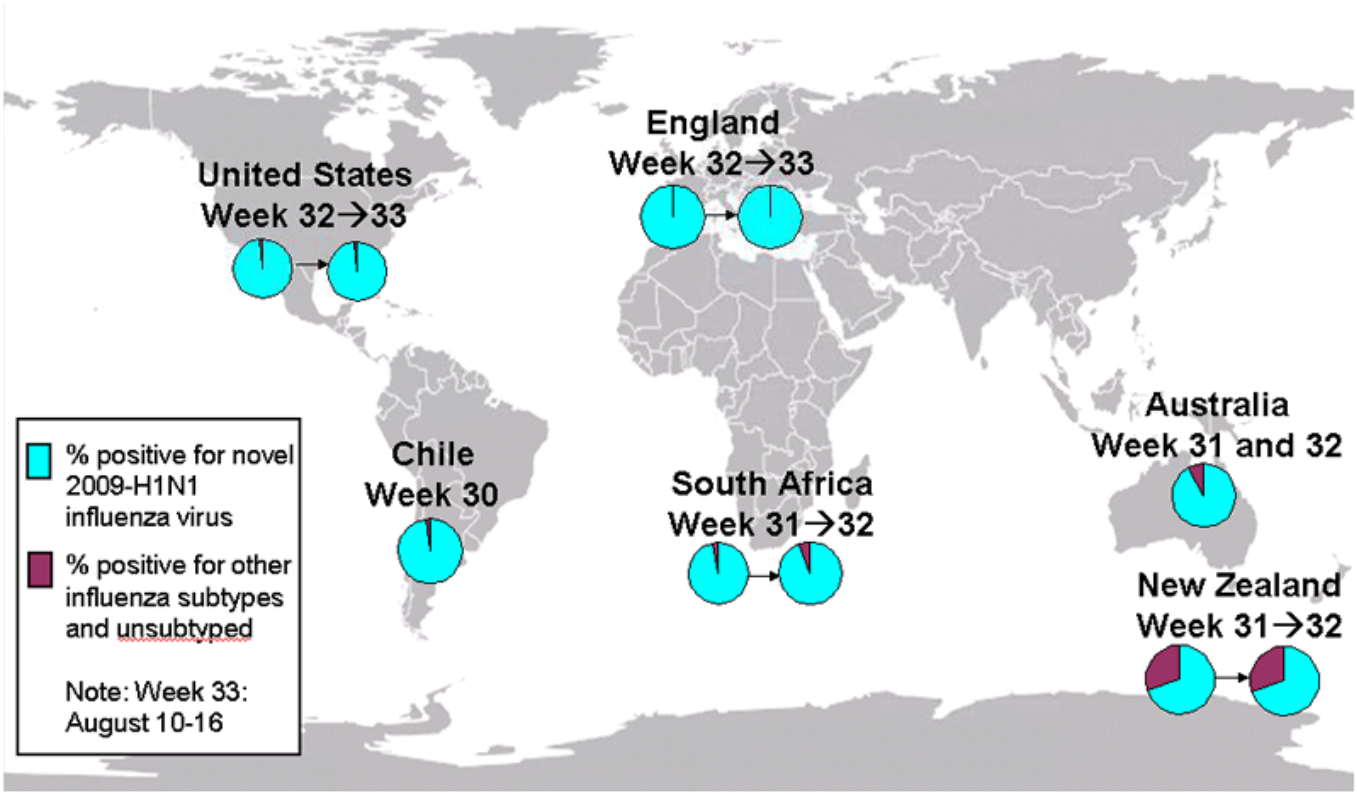
Co-circulation of Novel and Seasonal Influenza A Viruses – Epidemiology Weeks 30-33



Bottom line: Worldwide, more than 95% of Influenza A virus isolates are the new “2009 H1N1 virus”

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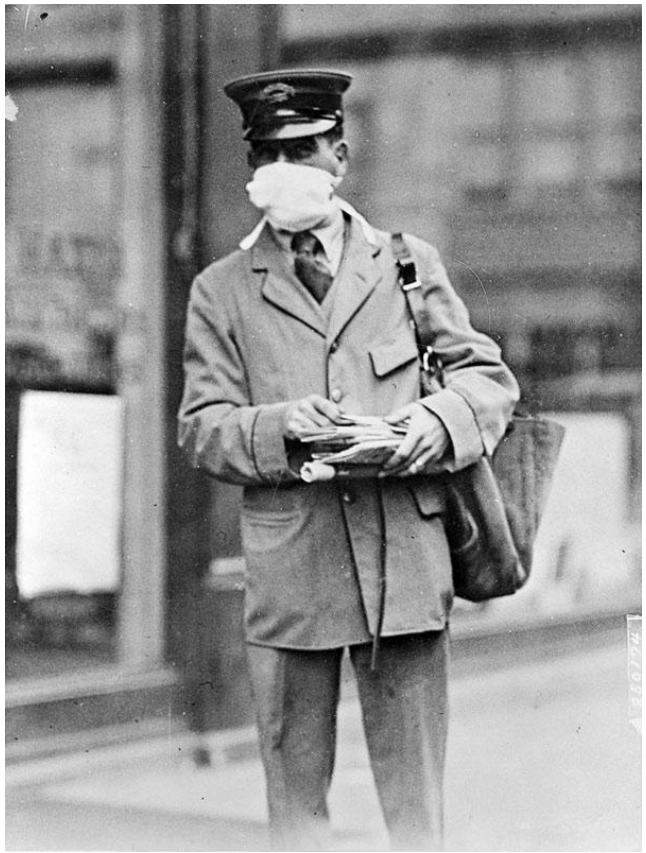

What's going to happen this fall?

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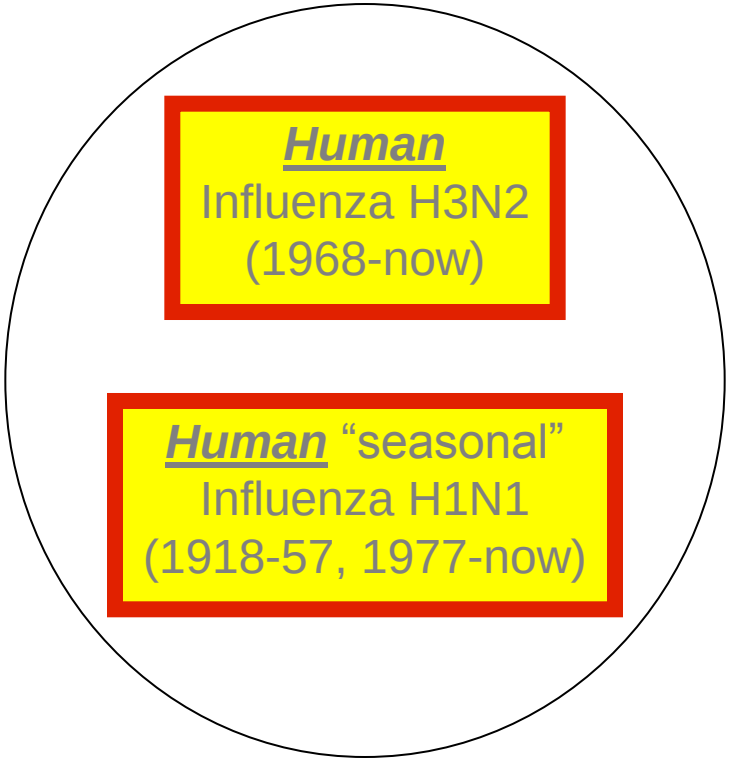
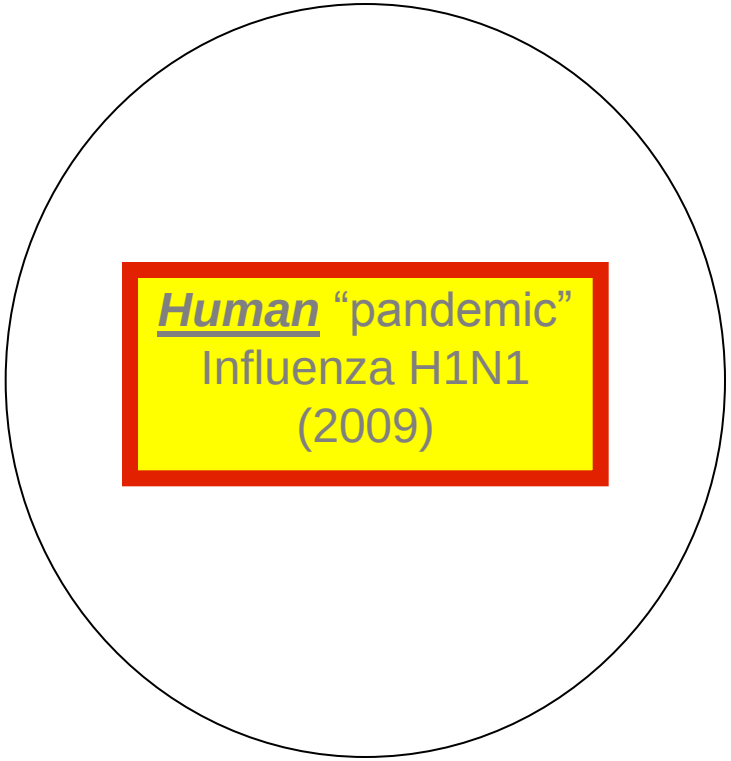
Situation in Fall 2009



Two "seasonal" influenza viruses



One "pandemic" influenza virus

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National Estimates

Factor	Seasonal Influenza Averages	2009 H1N1
Deaths per 100 influenza illnesses	0.1-0.2	0.1
Hospitalizations per 100 influenza illnesses	1	1
Attack Rate	5-20%	30-50%
Deaths/year	~36,000	30,000-90,000 (PROJECTED)
Age Distribution of Deaths	90+% of deaths ≥65 yrs	90+% of deaths <65 yrs

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What if 1957 & 1968 Pandemics Happened in Washington Today?*

	Similar to 1957 pandemic			Similar to 1968 pandemic		
Age group	ILI	Hosp	Deaths	ILI	Hosp	Deaths
0-19	729K	7.3K	650	700K	7K	630
20-39	520K	5.2K	520	610K	6.1K	610
40-59	423K	4.2K	440	749K	7.5K	780
60-79	168K	1.7K	180	306K	3.1K	340
80+	45K	0.5K	50	67K	0.6K	70
Total	1.9M	18.9K	~1800	2.4M	24.3K	~2400

*In the absence of vaccine & other community mitigation factors

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Summary of 2009 H1N1

- It's not going away.
- Not a 1918-like scenario.
- Severe illness and death rates similar to seasonal influenza but more people will get sick.
- Relatively stable virus.
- Highest risk for illness: children, adolescents and adults over 50 with pre-existing medical conditions.

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What we can do…

Vaccine is our most effective influenza control option.

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Current Vaccine Situation*

- Estimated initial delivery date is mid-October:
  - 45 million doses nationally; 20 million doses/week after initial delivery.
  - 950 thousand doses for Washington; 420 thousand doses/week after initial delivery.

Goal: Immunize and protect 6.7 million Washington residents.

Challenge: Deliver 13.4 million vaccine doses (two doses per person).

* As of August 31, 2009

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Priority Groups

Centers for Disease Control and Prevention identified **five initial priority groups** for vaccination:

- Pregnant women.
- Live with/provide care for infants under six months old.
- Health care and emergency services personnel.
- Children and young adults aged 6 months - 24 years.
- People aged 25 – 64 who have medical conditions putting them at higher risk for influenza-related complications.

In Washington there are over 2 million people between the ages of 6 months – 24 years alone.

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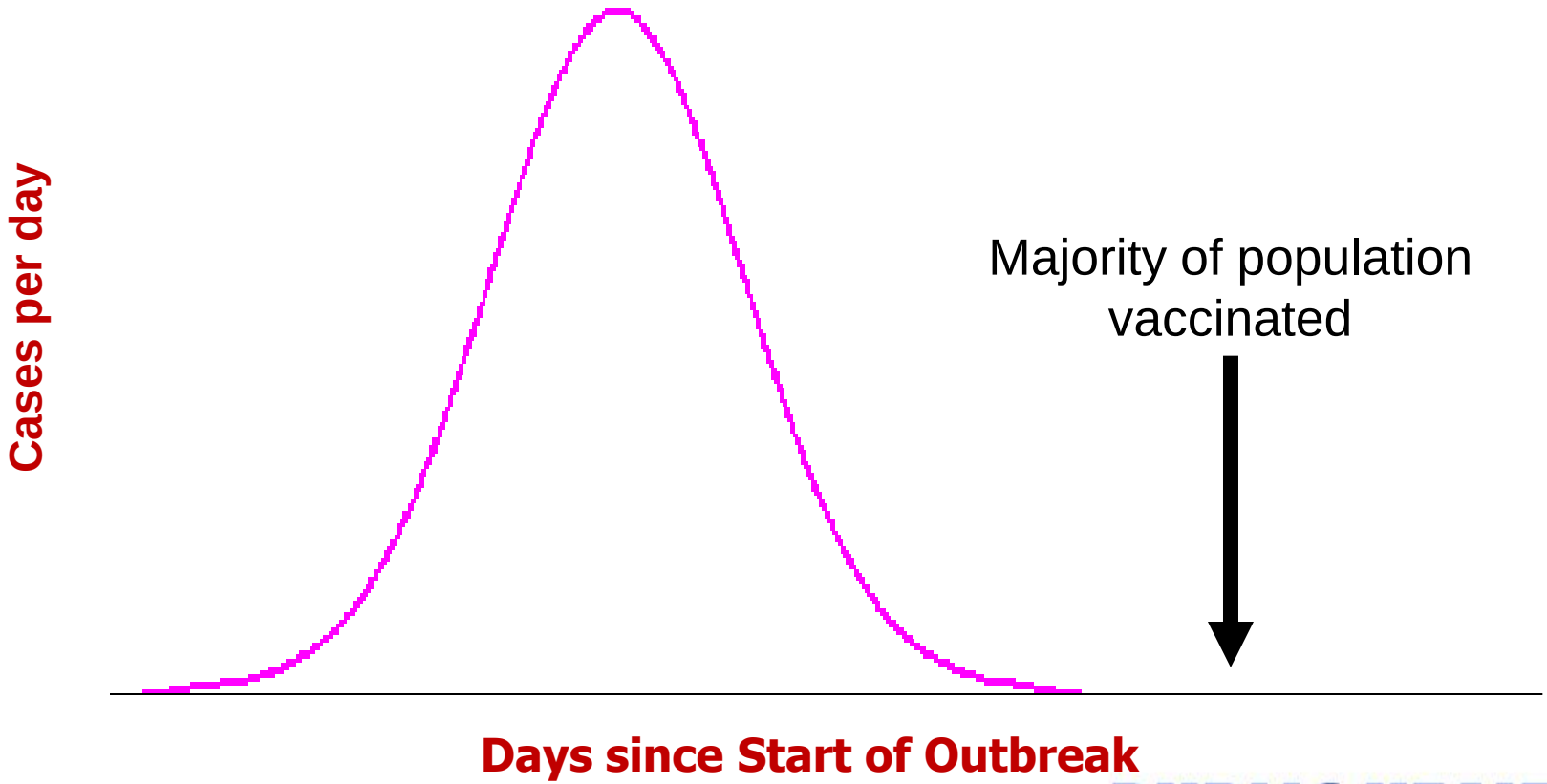
Outbreak without virus prevention & containment measures



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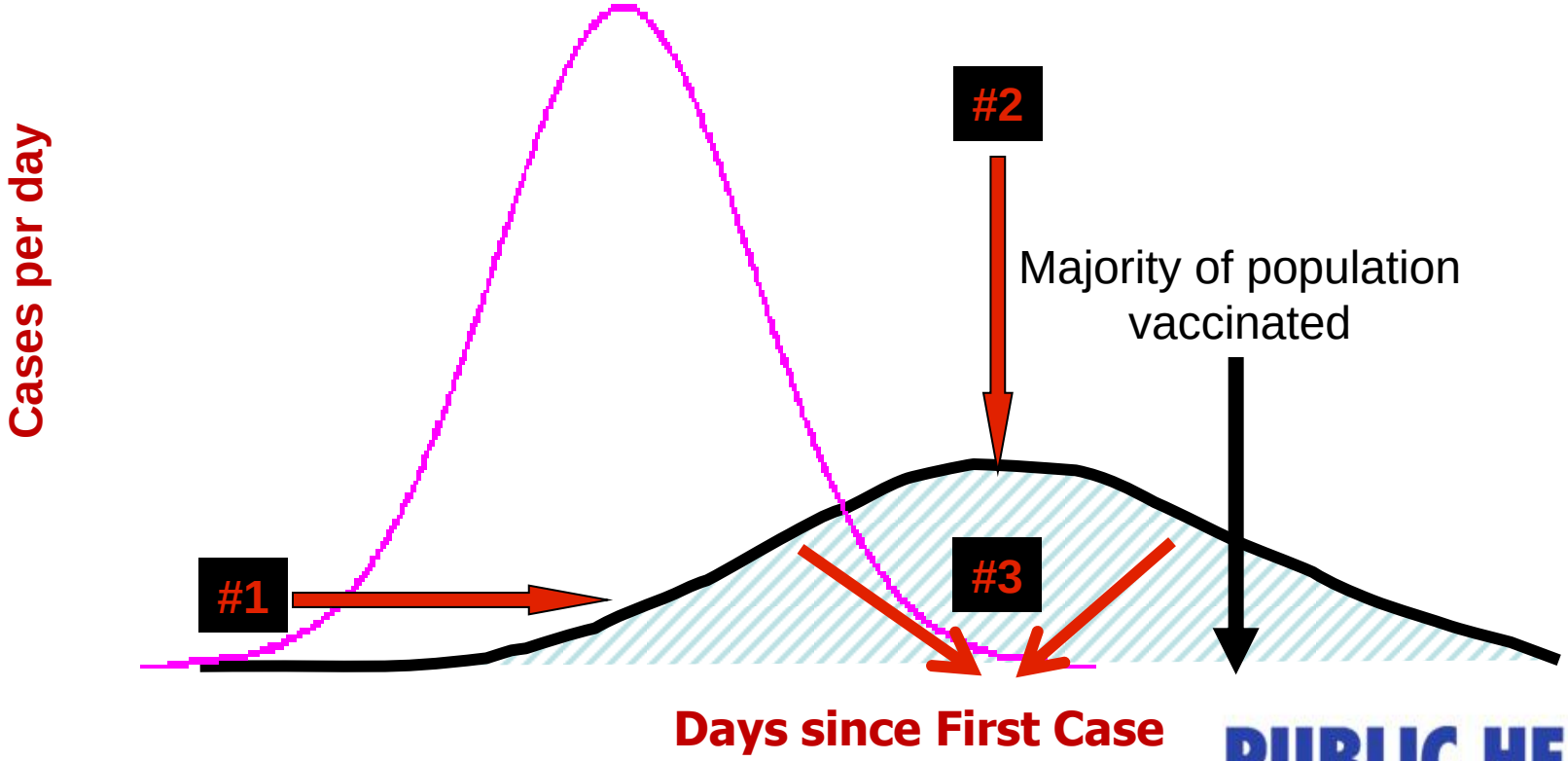
Outbreak with prevention & containment measures

Goals of prevention:

1. Delayed outbreak peak
2. Lower outbreak peak
3. Decrease total number of cases



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What we're doing

- Flu monitoring and investigation.
- Antiviral drugs.
- Providing vaccine.

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What we're doing

- Assuring adequate care.
- Working with partners.
- Informing the public.

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What you can do

- Wash your hands.
- Cover your cough.
- Get your flu shots.
- Try to avoid contact with sick people.
- Make a plan.
- Stay home if you're sick.

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More information

Washington State Department of Health

http://www.doh.wa.gov/h1n1/

Local public health departments

http://www.doh.wa.gov/LHJMap/

Federal government

http://www.flu.gov/

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